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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,119	10/18/2006	Ole-Bendt Rasmussen	50000-OR04	4648

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EXAMINER	
LOPEZ, RICARDO E.	

ART UNIT	PAPER NUMBER
1786	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/554,119	RASMUSSEN, OLE-BENDT	
	Examiner	Art Unit	
	RICARDO E. LOPEZ	1786	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 November 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *49-66,96 and 98-118* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *49-66, 96,and 98-118* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's Amendments and Accompanying Remarks filed on October 06, 2010 has been entered and carefully considered. Claims 1 – 44, 67 – 95 and 97 have been canceled. New claims 98 – 118 have been added. In view of argument and amendment, the Examiner has withdrawn the rejection of claims 49 – 55 and 96 over Momose as detailed in the Office Action dated July 06, 2010. The invention as currently claimed is not found to be patentable for reasons herein below.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 49 - 66, 96 and 98 – 118 are rejected under 35 U.S.C. 102 (b) as being unpatentable over Perez et al. US Patent No 6,630,231 B2

4. Considering claims 49 - 66, 96 and 98 – 118, Perez et al. teaches composite articles having a polymeric bulk or matrix phase and a polymeric reinforcement phase comprising polymeric microfibers. The microfibers can be provided by forming highly oriented, semi-crystalline, polymeric films or foams, followed by partially or totally microfibrillating the highly oriented film, thereby forming the microfibers [Col. 2, lines 13 – 18].

Furthermore, Perez et al. also teaches that Polymers useful in forming the microfibers include any melt-processable crystalline, semicrystalline or crystallizable polymers. Semicrystalline polymers consist of a mixture of amorphous regions and crystalline regions. The crystalline regions are more ordered and segments of the chains actually pack in crystalline lattices. Some polymers can be made semicrystalline by heat treatments, stretching or orienting, and by solvent inducement, and these processes can control the degree of true crystallinity. Semicrystalline polymers useful in the present invention include, but are not limited to, high and low density polyethylene, polypropylene, and thermotropic liquid crystal polymers [Col. 3, lines 10 – 20].

Moreover, Perez et al. also teaches that Useful polymers preferably are those that can undergo processing to impart a high orientation ratio in a manner that enhances their mechanical integrity, and are semi-crystalline in nature. Orienting semi-crystalline polymers significantly improves the strength and elastic modulus in the

orientation direction, and orientation of a semicrystalline polymer below its melting point results in an oriented crystalline phase with fewer chain folds and defects. The most effective temperature range for orienting semicrystalline polymers is between the alpha crystallization temperature of the polymer and its melting point. The alpha crystallization temperature, or alpha transition temperature, corresponds to a secondary transition of the polymer at which crystal sub-units can be moved within the larger crystal unit. Preferred polymers in this aspect therefore are those that exhibit an alpha transition temperature (T.sub..alpha.c) and include, for example: high density polyethylene, linear low density polyethylene, ethylene alpha-olefin copolymers, polypropylene. Particularly preferred polymers in this aspect have melting temperatures greater than 140 degree C and blends of such polymers with lower temperature melting polymers [Col. 3, lines 35 – 64].

Furthermore, Perez et al. also discloses that upon orientation, voids are imparted to the film. As the film is stretched, the two components separate due to the immiscibility of the two components and poor adhesion between the two phases. When the film comprise a continuous phase and a discontinuous phase, the discontinuous phase serves to initiate voids which remain as substantially discrete, discontinuous voids in the matrix of the continuous phase [Col. 7, lines 43 – 50].

Moreover, Perez et al. also teaches that after orientation the cells are relatively planar in shape and have distinct boundaries. Cells are generally coplanar with the major surfaces of the foam, with major axes in the machine (X) and transverse (Y) directions (directions of orientation). The sizes of the cells are substantially uniform and

dependent on concentration of blowing agent, extrusion conditions and degree of orientation [Col. 10, lines 53 – 68].

Perez et al. also teaches that the microfibers generally have an effective average diameter less than about 20 microns, and can have an effective average diameter ranging from about 0.01 microns to about 10 microns, preferably 0.1 to 5 microns, and are substantially rectangular in cross section. As the microfibers are usually substantially rectangular, the effective diameter may be a measure of the average value of the width and thickness of the fibers. Some microfibers have a Transverse Aspect Ratio of from 1.5:1 to 20:1, while other microfibers have a transverse aspect ratio of between about 3:1 to 9:1 [Col. 12, lines 10 – 20], thus anticipating all limitations in the instant claims.

5. Claims 56 – 59 and 98 – 118 are rejected under 35 U.S.C. 102 (b) as being unpatentable over Momose US Patent No 5,019,439.

6. Considering claims 56 – 59 and 98 - 118, Momose teaches an extruded oriented film comprising a layer of alloy of two polymers, the second resin corresponding to applicants P1 and the first resin corresponding to applicants P2. The first resin may be, for example, a polyolefin such as polyethylene or polypropylene, polystyrene, a polyacrylonitrile, polyester, a polycarbonate, poly vinyl chloride, or a modified resin thereof. The second resin may be, for example, a polyamide, a saponified ethylene vinyl acetate copolymer, an ethylene vinyl alcohol copolymer EVOH (Col. 3, lines 42 -48);

both resins are partially crystalline under 100 ◦C (i.e. nylon 6 P1 and polyethylene P2, as described in example 2); wherein P2 in its unoriented state at 20 ◦ C exhibits a coefficient or modulus of elasticity more than 15 % lower than P1, and the alloy comprises a dispersion of microscopically fine fibrils (tapes) of P1 surrounded by P2. These fibrils or tapes extend each mainly in one direction and has width and thickness lower than 5 µm; said fibrils are flat and substantially parallel with the plane of the film, with thickness preferably in the range 0.05 to 10 µm and width more than five times the thickness (Col. 3, lines 1-21). Furthermore, that as result of the above described construction; the thermoplastic resin film can exhibit significantly improvement gas barrier property as compared with a known film having dispersed therein fine particles of the second thermoplastic resin (Col. 3, lines 23 – 28). Moreover, Momose teaches in the embodiment illustrated in Fig. 1 that the fibrils or tapes of resin P1 show at least 4 die lines. Thus anticipating all limitations in the subject claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 60 – 66 are rejected under 35 U. S. C. 103(a) as being unpatentable over Momose US Patent No 5,019,439 in view of Desarzens et al. US Patent No 6, 326,411 B1.

9. Considering claims 60 – 66, Momose teaches an extruded oriented film comprising a layer of alloy of two polymers, the second resin corresponding to applicants P1 and the first resin corresponding to applicants P2. The first resin may be, for example, a polyolefin such as polyethylene or polypropylene, polystyrene, a polyacrylonitrile, polyester, a polycarbonate, poly vinyl chloride, or a modified resin thereof. The second resin may be, for example, a polyamide, a saponified ethylene vinyl acetate copolymer, an ethylene vinyl alcohol copolymer EVOH (Col. 3, lines 42 -48); both resins are partially crystalline under 100 ◦C (i.e. nylon 6 P1 and polyethylene P2, as described in example 2); wherein P2 in its unoriented state at 20 ◦ C exhibits a coefficient or modulus of elasticity more than 15 % lower than P1, and the alloy comprises a dispersion of microscopically fine fibrils (tapes) of P1 surrounded by P2. These fibrils or tapes extend each mainly in one direction and has width and thickness lower than 5 µm; said fibrils are flat and substantially parallel with the plane of the film, with thickness preferably in the range 0.05 to 10 µm and width more than five times the thickness (Col. 3, lines 1-21).

Momose does not specifically recognize that the extruded oriented film be a cellular expanded film.

Desarzens et al. teaches an extrusion composition comprising a polymer, an adsorption agent including an expansion agent and a nucleating agent (Abstract). Furthermore, Desarzens et al. also teaches that by means of polymer extrusion technology, cellular structure materials of very variable apparent densities can be produced (Col. 1, lines 16 – 19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate expanding agents to Momose's polymeric composition when it is desired to obtain films having apparent density lower than the density of the unexpanded films. The weight proportion of P1 to P2 would be a result effective variable related to the final application of the thermoplastic polymeric cellular expanded film.

Response to Arguments

10. Applicant's Amendments and Accompanying Remarks filed on October 06, 2010 has been entered and carefully considered. Claims 1 – 44, 67 – 95 and 97 have been canceled. New claims 98 – 118 have been added. In view of argument and amendment, the Examiner has withdrawn the rejection of claims 49 – 55 and 96 over Momose as detailed in the Office Action dated July 06, 2010. The invention as currently claimed is not found to be patentable for reasons herein above.

Applicant's arguments with respect to claims 49 – 66 and 96 have been considered but are moot in view of new grounds of rejection.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICARDO E. LOPEZ whose telephone number is (571)-270-1150. The examiner can normally be reached on Monday to Thursday 8:00 am-5:30pm EST, and every other Friday from 8:00 am to 4:30 pm..

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, D. Lawrence Tarazano can be reached on (571)-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/REL/
Ricardo E. Lopez
Patent Examiner, Art Unit 1786
January 05, 2011

/D. Lawrence Tarazano/
Supervisory Patent Examiner, Art Unit 1786